

Cranes, Derricks, Hoists, Elevators, and Conveyors - Subpart N Section 6

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St. Paul Fire & Marine Insurance Company

Cranes and Derricks - 1926.550

Helicopters - 1926.551

Material Hoists, Personnel Hoists, and
Elevators - 1926.552

Base-Mounted Drum Hoists - 1926.553

Overhead Hoists - 1926.554

Conveyors - 1926.555

CRANES



.....and a few other pieces of equipment

Cranes and Derricks - 1926.550

General Requirements

- Follow manufacturer's specs and limits
- Capacities, speeds, warnings, instructions posted in view of operator
- ANSI standard hand signals posted at site
- Annual inspection documented





Improper footing







Wire ropes must be inspected prior to use each day.

(Synthetic webbing slings must be inspected according to its specific standard 1926.251(e).)

Wire Rope Removed From Use When:

6 broken wires in 1 lay, 3 in 1 strand

– for example 3/4 inch, 6 x 19 IWRC is one lay or six inches.

Outer wires worn 1/3 original diameter

Birdcaged, crushed, kinked

Heat damaged

Reductions from nominal diameter

Sheave grooves may become grooved if cable's nominal diameter is reduced, indicating wear.



Cranes and Derricks - 1926.550

Belts, gears, shafts, pulleys, etc. guarded

Swing radius barricaded

Exhaust pipes guarded or insulated

Exhaust in enclosed spaces - air
monitoring

General Requirements

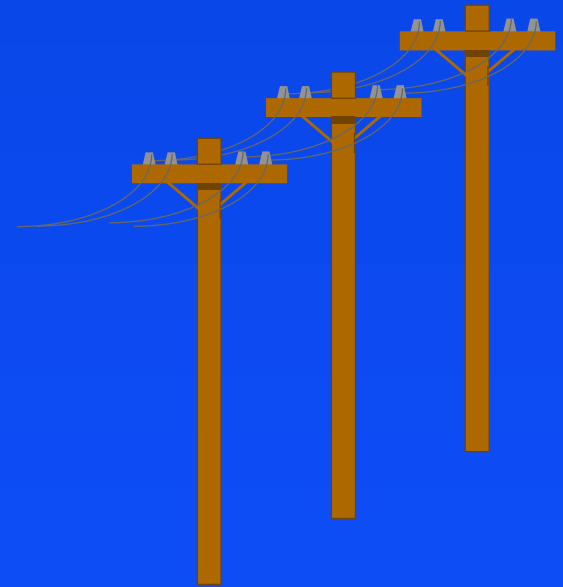
Windows in cabs - no distortion

- Ladder or steps to cab roof
- Guardrails, handholds, steps to cab
- Anti-skid walking surfaces
- Fire extinguisher of 5BC rating

Crane Electrical Hazards

If operator has no clear view, spotter needed

Work near transmitter towers may require grounding cables





At LEAST 10 ft. from wires





Cranes and Derricks - 1926.550

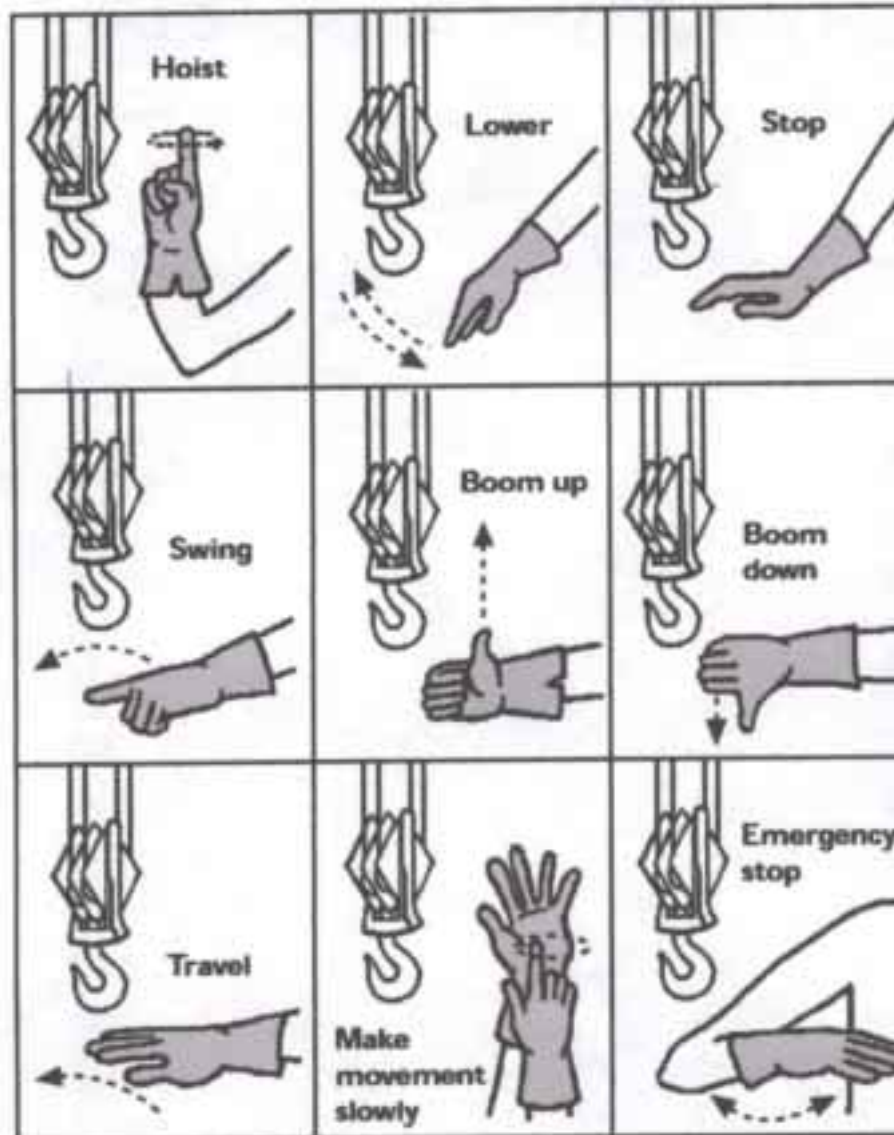
General Requirements

- NO modifications or additions without manufacturer's written approval.
- All employees clear of suspended loads at all times.

Mark's first crane



Recommended Hand Signals



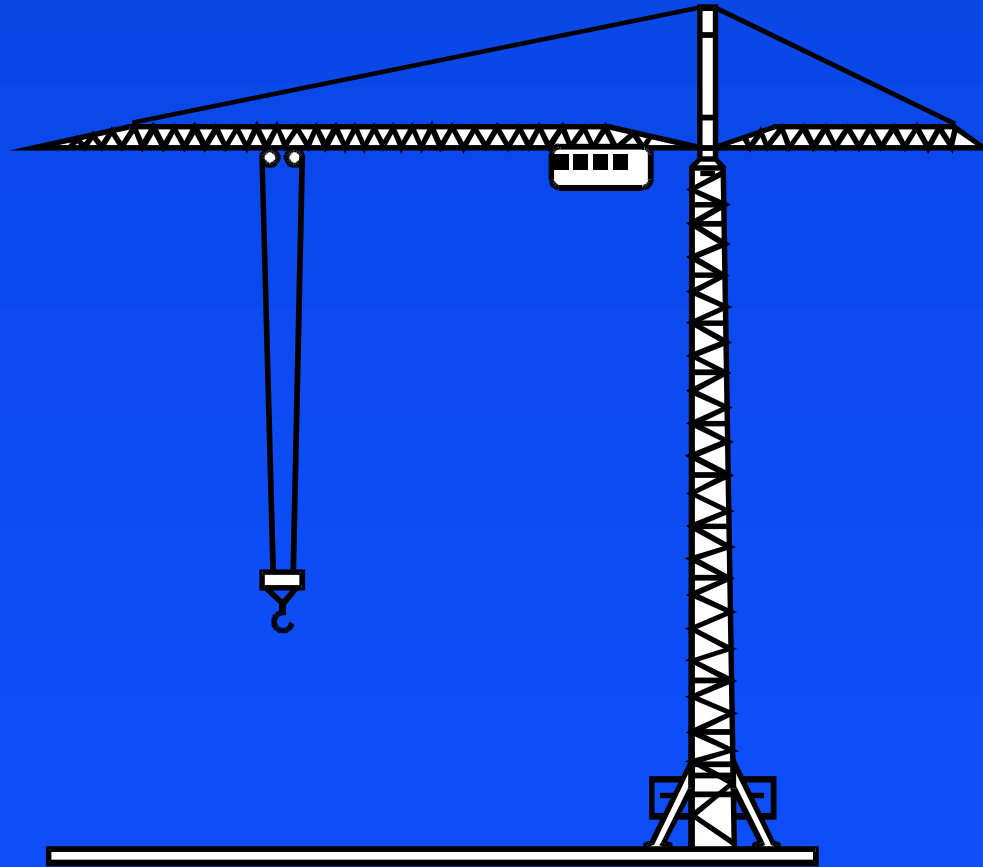
Crawlers and Locomotives

Compliance with ANSI B30.5-1968

Record of inspections on file

Jibs have positive stops to prevent overbooming of more than 5 degrees above the straight line of the jib

Tower Cranes





Slewing unit of tower crane







Hammerhead Tower Cranes - 1926.550

Employees tied off on horizontal booms

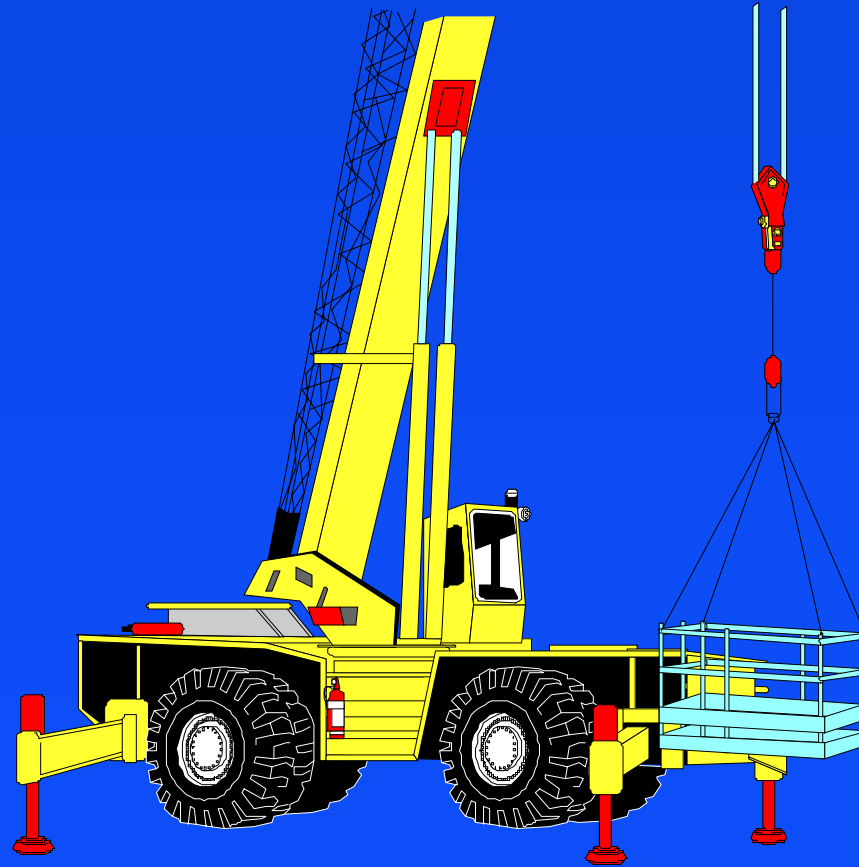
Buffers at each end of trolley

Limit switches in place

Manufacturer's recommendations

Adequate clearances maintained

Suspended Personnel Platforms



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Illegal hoisting
of personnel





Personnel baskets (Personnel platforms)

Rule #1- May only be used
when there is NO OTHER safe
means of performing the work!
Personnel baskets are the tool of
last resort.

Personnel basket crane specs

Brakes set, level within 1% of grade

Derate machine capacity 50%

Load line safety factor 7-10 times

No live boom machines

Telescoping boom length indicator

No free fall- power up & power down

Positive anti-two block device



Anemometer



Cranes and Derricks - 1926.550

Suspended Personnel Platforms Design

- Support 5 times intended load
- Guardrail, enclosed from midrail to toeboard, grab rail installed inside
- Hard hats and overhead protection
- Welding by qualified welder
- Weight of platform and rated capacity marked

Suspended Personnel Platforms - 1926.550

Master link or shackle for bridle legs

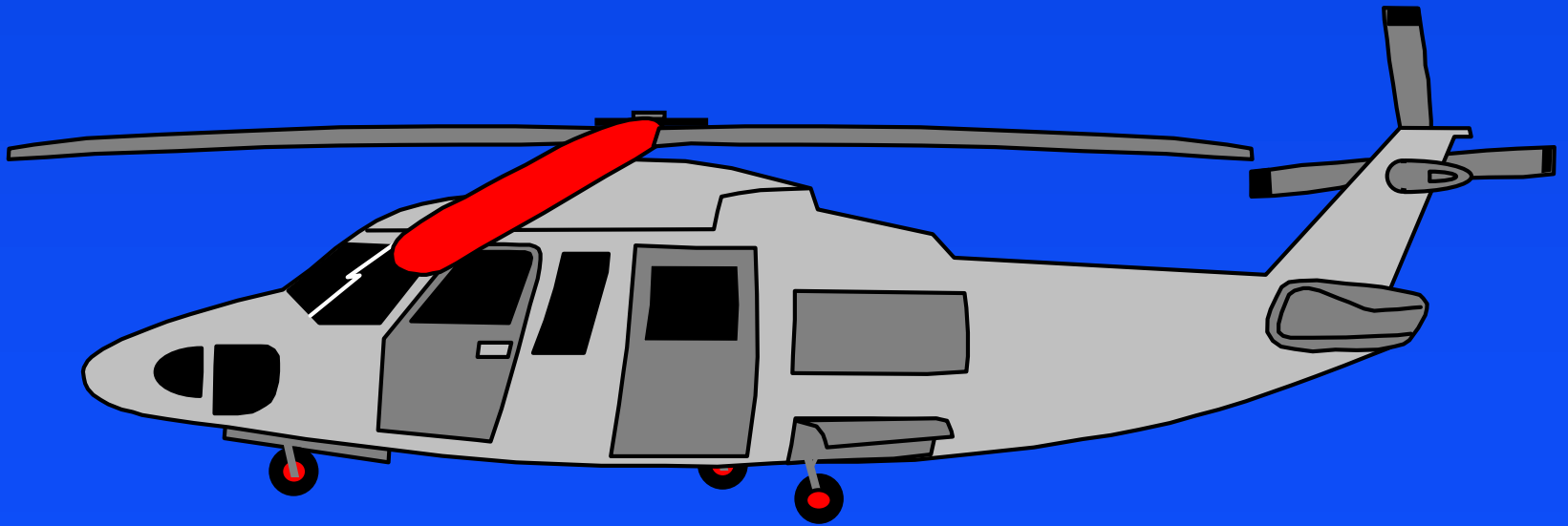
- Eyes fabricated with thimbles

Rigging used only for personnel basket

Basket landed or secured before entry

Employees tied off to basket

Helicopters



Helicopters - 1926.551

Federal Aviation Administration regulations

Briefing (includes emergency drop zone)

Slings and tag lines, cargo hooks

Personnel Protective Equipment

Hooking and unhooking (static electricity)

Signal systems, visibility, & communication

Approach distance and approaching

Fires

Air crane at McKee Foods







Material Hoists, Personnel Hoists, and Elevators - 1926.552

General Requirements

- Manufacturer's specifications and limitations
- Capacities, speeds, hazard warnings posted
- Removal of damaged wire rope





Material Hoists

Operating rules established and posted at operator station - No riders

Entrances to hoistways protected

Overhead protection - cages, platforms, operator stations

Hoist tower enclosures

Car arresting devices in case of rope failure

Designed by professional engineer





Personnel Hoists and Elevators - 1926.552

Tower anchored to structure every 25 ft.

Cars permanently enclosed on all sides except entrance

Doors or 78"-high gates at each level

Electric safety contacts on doors/gates

Capacity and data posted

Emergency stop switch inside car

Inspection and testing before use and every 3 months

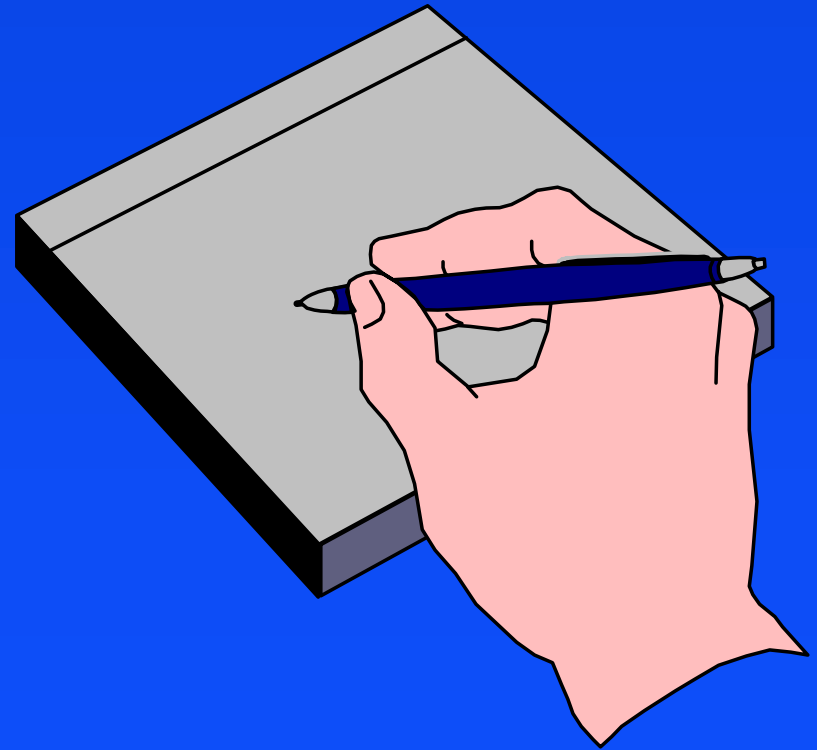
The Most Frequent Citations:

Failure to guard
swing radius

Operating near
power lines

No load chart

Unnecessary use of
personnel basket



**This lift should have been stopped before it
got this far**





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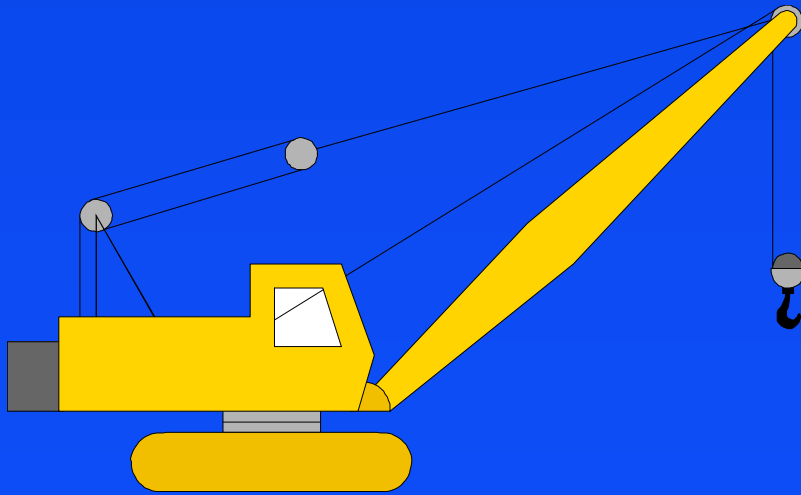




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What Questions Do You Have On Cranes, Derricks, Hoists, and Conveyors?



Now I have a few questions

Please turn to the Crane Test page in your handout material

Crane, Derricks, Hoists

1. The CLOSEST crane approach to live power line?
2. Suspended personnel platforms may ONLY be used when?
3. Are broken wires allowed?
4. The size extinguisher for a crane?

Answers

1. No CLOSER than 10 feet
2. When there's no other safe way to work
3. No more than 6 in 1 lay, 3 in 1 strand
4. 5 BC Extinguisher (minimum)

Take a break !

Be back in TEN minutes

